What is Claimed:

1. An oxygen absorbing composition comprising:

at least one oxygen reducing agent;

water;

a carrier;

an electrolyte salt; and

a humectant salt, which may be the same as the electrolyte salt, present in an amount sufficient to reduce the water activity of the composition to below 0.6.

2. The oxygen absorbing composition of claim 1 wherein the amount of humectant salt and electrolyte salt combined is sufficient to reduce the water activity within the composition to below 0.59.

3. The oxygen absorbing composition of claim 1 wherein the amount of humectant salt and electrolyte salt combined is sufficient to reduce the water activity within the composition to below 0.55.

4. The composition of claim 1 wherein the reducing agent is selected from the group consisting of iron, copper, zinc, sulfides, sulfites, ascorbic acid, salts of ascorbic acid, chlorine, iodine, bromine, carotenoids, tocopherol, polyphenols, and combinations thereof.

5. The composition of claim 1 wherein the reducing agent is 200 mesh iron powder.

6. The composition of claim 1 wherein the humectant salt is selected from the group consisting of sodium chloride, calcium chloride, lithium chloride, iodides, carbonates, sulfate salts, and combinations thereof.

7. The composition of claim 1 wherein the electrolyte salt is selected from the group consisting of sodium chloride, calcium chloride, potassium iodide, lithium chloride, and combinations thereof.

8. The composition of claim 1 wherein the carrier is selected from the group consisting of silica, clay, cellulose, natural and synthetic silicates, a gelling agent, and combinations thereof.

9. An oxygen scavenging composition comprising:

30 - 70 wt% electrolytic iron;

10 - 40 wt% carrier;

10 - 20 wt% water;

1 - 10 wt% sodium chloride; and

1 - 30 wt% humectant salt.

10. An oxygen scavenging composition comprising:

30 - 55 wt% electrolytic iron;

25 - 37 wt% silica gel;

10 - 15 wt% water;

3 - 6 wt% sodium chloride; and

3 - 6 wt% humectant salt.

11. A device for scavenging oxygen within a low-moisture container comprising:

an oxygen absorbing composition comprised of:

an oxygen reducing agent;

water;

a carrier;

an electrolyte salt; and

a humectant salt, which may be the same as the electrolyte salt, present in an amount sufficient to reduce the water activity of the composition to below 0.6; and

a barrier to enclose said oxygen absorbing composition and retain said oxygen absorbing composition within said low-moisture container, said barrier allowing the passage of oxygen to said composition and limiting the escape of moisture out of said composition.

12. The device of claim 11 wherein the barrier is comprised of a material selected from the group consisting of polyethylene, polypropylene, polyester, nylon, ionomer, and laminated combinations thereof.

13. The device of claim 11 wherein the barrier is comprised of a material selected from the group consisting of a linear low density polyethylene laminate, a laminated film composite, and a laminated film and paper composite.

14. The device of claim 11 wherein the barrier is selected from the group consisting of a sachet, a canister, a self-adhesive laminate, a label, and a capsule.

15. A method of making an oxygen absorbing composition for use in a low-moisture environment comprising the steps of:

(a) dissolving an electrolyte salt and a humectant salt in water, wherein the humectant salt may be the same as the electrolyte salt, and wherein the humectant salt and electrolyte salt are present in sufficient amount to reduce the water activity of the composition to below 0.6;

(b) mixing the solution of step (a) with a carrier;

(c) blending the mixture of step (b) with at least one reducing agent; and

(d) placing the blend of step (c) within a barrier, the barrier allowing the passage of oxygen to the blend and limiting the escape of moisture away from the blend.

16. The method of claim 15 wherein the reducing agent is selected from the group consisting of iron, copper, zinc, sulfides, sulfites, ascorbic acid, salts of ascorbic acid, chlorine, iodine, bromine, carotenoids, tocopherol, polyphenols, and combinations thereof.

17. The method of claim 15 wherein the humectant salt is selected from the group consisting of sodium chloride, calcium chloride, lithium chloride, iodides, carbonates, phosphates and sulfate salts.

18. The method of claim 15 wherein the electrolyte salt is selected from the group consisting of sodium chloride, calcium chloride, potassium iodide, lithium chloride, bromides, and combinations thereof.

19. The method of claim 15 wherein the carrier is selected from the group consisting of silica gel, clay, cellulose fiber, and combinations thereof.

20. A method of storing moisture-sensitive, oxygen-sensitive substances in a low-moisture, low-oxygen environment, said method comprising:

placing a moisture-sensitive, oxygen-sensitive substance into an oxygen-permeable container having an environment with an equilibrium relative humidity of less than 50%; and

disposing an oxygen-scavenging composition within said oxygen-permeable container, said oxygen-scavenging composition disposed within an oxygen-permeable barrier and having a water activity less than 0.60.

21. The method of claim 20 wherein the oxygen-scavenging composition is comprised of:

30 - 70 wt% electrolytic iron;

10 - 40 wt% silica gel;

10 - 20 wt% water;

1 - 10 wt% sodium chloride; and

1 - 30 wt% humectant salt.

22. The method of claim 20 wherein the oxygen-permeable barrier is comprised of a material selected from the group consisting of polyethylene, polypropylene, polyester, nylon, ionomer, and laminated combinations thereof.